WHAT IS CLAIMED IS:

1. A conductive member, for use in an image-forming apparatus, in the group which includes a conductive roller or a conductive belt having a conductive layer formed of a conductive polymer

5   composition containing an ionic-conductive addition salt,

wherein said conductive layer comprises a continuous phase and one or more uncontinuous phases including at least one first uncontinuous phase;

said continuous phase and said uncontinuous phase form a

10   sea-island structure;

a salt capable of dissociating into cations and anions is unevenly distributed to said first uncontinuous phase;

a polymer composing said first uncontinuous phase has a higher degree of affinity for said salt capable of dissociating into cations

15   and anions than a polymer composing said continuous phase; and

said conductive layer has a volume resistivity not less than $10^4 (\Omega \cdot cm)$ nor more than $10^{12} (\Omega \cdot cm)$, when said volume resistivity is measured at a voltage of 100V applied to said conductive polymer composition in accordance with the method specified in JIS K6911.

20   2. The conductive member according to claim 1, wherein supposing that a volume resistivity of said polymer composing said first uncontinuous phase to which said salt capable of dissociating into cations and anions is unevenly distributed is ρv_1 and that said polymer composing said continuous phase is ρv_2, the following

25   equation establishes:

$$0.2 \leqq \log_{10} \rho v_2 - \log_{10} \rho v_1 \leqq 5$$

3. The conductive member according to claim 1, wherein a ratio of a weight of said polymer composing said uncontinuous phase to a weight of said polymer composing said continuous phase is set to 5:95 to 75:25.

4. The conductive member according to claim 1, wherein said uncontinuous phase consists of said first uncontinuous phase and a second uncontinuous phase; and said salt capable of dissociating into cations and anions is unevenly distributed to said first uncontinuous phase, whereas said salt capable of dissociating into cations and anions is distributed very little to said second uncontinuous phase and said continuous phase;

an affinity between said salt and said polymer composing said first uncontinuous phase is higher than an affinity between said salt and said polymer composing said continuous phase, and said affinity between said salt and said polymer composing said continuous phase is higher than an affinity between said salt and said polymer composing said second uncontinuous phase; and

an electric resistance (volume resistivity) of said first uncontinuous phase is lower than an electric resistance value of said continuous phase, and said electric resistance value of said continuous phase is lower than an electric resistance value of said second uncontinuous phase.

5. The conductive member according to claim 1, wherein said salt capable of dissociating into cations and anions has a electric

conductivity of not less than 2.3mS/cm, when said electric conductivity is measured at a concentration of a salt of 0.1 mol/liter at 25°C in a mixed solvent of propylene carbonate (PC) and dimethyl carbonate (DME) (mixing ratio between PC and DME is 1:2 in volume fraction).

6. The conductive member according to claim 1, wherein said salt capable of dissociating into cations and anions is an anion-containing salt having fluoro groups and sulfonyl groups.

7. The conductive member according to claim 6, wherein said salt capable of dissociating into cations and anions is a lithium salt, a potassium salt, a quaternary ammonium salt or an imidazolium salt.

8. The conductive member according to claim 1, wherein said conductive polymer composition is a vulcanized or a thermoplastic elastomer composition.

9. The conductive member according to claim 1, wherein each of polymers for use in said continuous phase and said uncontinuous phase has a glass transition temperature (Tg) not more than -40°C.

10. The conductive member according to claim 1, wherein said continuous phase contains low nitrile acrylonitrile-butadiene rubber (NBR); said first uncontinuous phase contains polyether polymer; and said second uncontinuous phase contains ethylene-propylene-diene copolymer (EPDM); and

salt capable of dissociating into cations and anions is unevenly distributed to said polyether polymer of said first

uncontinuous phase.

11. The conductive member according to claim 1, wherein said continuous phase contains low nitrile acrylonitrile-butadiene rubber (NBR); said first uncontinuous phase contains polyether
5   polymer; and said second uncontinuous phase contains ethylene-propylene-diene copolymer (EPDM); and

a volume fraction of said continuous phase is higher than a volume fraction of said second uncontinuous phase; and said volume fraction of said second uncontinuous phase is higher than a volume
10   fraction of said first uncontinuous phase.

12. The conductive member, according to claim 11, comprising 50 wt% to 90 wt% of said low-nitrile acrylonitrile-butadiene rubber (NBR); 10 wt% to 40 wt% of said ethylene-propylene-diene copolymer (EPDM); 0.5 wt% to 25 wt% of said polyether polymer; and 0.1 wt%
15   to 2 wt% of said salt capable of dissociating into cations and anions.

13. The conductive member according to claim 4, wherein said polyether polymer essentially contains a copolymer of ethylene oxide (EO)-propylene oxide (PO)-allyl glycidyl ether (AGE).

14. The conductive member according to claim 1, wherein said
20   conductive polymer composition has a compression set not more than 30%, when said compression set is measured at a temperature of 70°C for 22 hours to 24 hours at a compression rate of 25% in accordance with Permanent set testing methods for rubber, vulcanized or thermoplastic specified in JIS K6262.

25   15. The conductive member, according to claim 1, consisting

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of a roller having said conductive layer or a belt having said conductive layer.

16. The conductive member consisting of a conductive roller according to claim 1, wherein when an electric resistance value R (Ω) of said conductive roller is measured by applying a constant voltage of 1000V thereto for 96 hours successively at a temperature of 23°C and a relative humidity of 55%, $\Delta \log_{10}R = \log_{10}R(t=96$ hours)$-\log_{10}R(t=0$ hour) indicating a rise amount of said electric resistance R (Ω) is set to not more than 0.5.

17. The conductive member consisting of a conductive roller according to claim 1, wherein when an electric resistance value R (Ω) of said conductive roller is measured at a temperature of 10°C and a relative humidity of 15% and at a temperature of 32.5°C and a relative humidity of 90%, $\Delta \log_{10}R = \log_{10}R$(temperature of 10°C and relative humidity of 15%)$-\log_{10}R$(temperature of 32.5°C and relative humidity of 90%) indicating a dependence degree of said electric resistance value on environment is set to not more than 1.7.

18. The conductive member consisting of a conductive roller or/and a conductive belt according to claim 1, wherein said conductive layer is formed as a cellular material layer having an expansion ratio of not less than 100% nor more than 500% and a hardness of not more than 60 degrees, when said hardness is measured by the durometer of type E specified in JIS K6253.

19. The conductive member consisting of a conductive belt

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according to any one of claim 1, wherein when a volume resistivity ρv ($\Omega \cdot cm$) of a sample of said conductive belt is measured by applying a constant voltage of 1000V to said sample having a thickness of 0.25mm for five hours successively at a temperature of 23°C and a

5   relative humidity of 55%, $\Delta \log_{10} \rho v=$

$\log_{10} \rho v(t=5 \text{ hours})-\log_{10} \rho v(t=0 \text{ hour})$ indicating a rise amount of said volume resistivity is set to not more than 0.5.

20. The conductive member consisting of a conductive belt according to claim 1, wherein when a volume resistivity ρv ($\Omega \cdot cm$)

10   of said conductive belt is measured at a temperature of 10°C and a relative humidity of 15% and at a temperature of 32.5°C and a relative humidity of 90%,

$\Delta \log_{10} \rho v=\log_{10} \rho v$ (temperature of 10°C and relative humidity of 15%)$-\log_{10} \rho v$ (temperature of 32.5°C and relative humidity of 90%)

15   indicating a dependence degree of said volume resistivity on environment is set to not more than 1.7.

21. The conductive member consisting of a flame-retardant seamless belt according to claim 1, wherein said conductive polymer composition comprises 50 to 95 parts by weight of a polyester

20   thermoplastic elastomer added to 100 parts by weight of an entire polymer component; 15 wt% to 40 wt% of melamine cyanurate serving as a flame-retardant additive added to 100 wt% of said conductive polymer composition; 0.01 parts by weight to 3 parts by weight of said salt, which can dissociate into cations and at least an anion

25   shown by a chemical formula 1, added to 100 parts by weight of said

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entire polymer component; and not less than 5 parts by weight nor
more than 50 parts by weight of a copolymer, having a polyether
block, added to 100 parts by weight of said polyester thermoplastic
elastomer; and

5   said conductive polymer composition has a volume resistivity
of not less than $1.0 \times 10^6 \Omega \cdot cm$ nor more than $1.0 \times 10^{12} \Omega \cdot cm$.
Chemical Formula 1

$$\begin{array}{c} X_1 \\ \diagdown \\ \diagdown N^- \\ \diagup \\ X_2 \diagup \end{array}$$
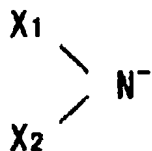
Where X_1 and X_2 denote functional group which contains C, F-, and
10   $-SO_2-$ and in which the number of carbon atoms is one to eight.

22. The conductive member consisting of a belt according to
claim 21, wherein supposing that a volume resistivity of said belt
measured immediately after a constant voltage of 1000V is applied
to a sample of said belt having a thickness of 250 μm at a temperature
15   of 23°C and a relative humidity of 55% is ρv (t=0 hour) and that
a volume resistivity measured after said voltage is applied to said
sample for five hours successively is ρv (t=five hours),

the following relationship establishes:

$\log_{10} \rho v (t=5 \text{ hours}) - \log_{10} \rho v (t=0 \text{ hour}) \leqq 0.5$

20   23. The conductive member according to claim 21, wherein a
glass transition temperature Tg of said copolymer having said
polyether block is set to not more than -40°C; and

a weight of said copolymer, having said polyether block,

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contained in a material of said belt is 1.6 to .3333 times as large as that of said salt, which can dissociate into cations and at least an anion shown by said chemical formula 1.

24. The conductive member according to claim 21, wherein said X_1- of said chemical formula 1 is $C_{n1}H_{m1}F_{(2n1-m1+1)}-SO_2-$, and X_2- of said chemical formula 1 is $C_{n2}H_{m2}F_{(2n2-m2+1)}-SO_2-$ (n1 and n2 are integers not less than 1, and m1 and m2 are integers not less than 0); and

a cation making a pair with said anion, shown by said chemical formula 1, which constitutes said salt is a cation of any one of alkali metals including lithium, group 2A metals, and transition metals, and amphoteric metals.

25. The conductive member according to claim 21, wherein when a volume resistivity of said conductive member is measured at a temperature of 10°C and a relative humidity of 15% and at a temperature of 32.5°C and a relative humidity of 90%

, the following equation establishes:

$\log_{10} \rho v$ (temperature of 10°C and relative humidity of 15%)$-\log_{10}\rho v$(temperature of 32.5°C and relative humidity of 90%) $\leqq 2.5$.

26. The conductive member according to claim 21, having at least one layer formed on a peripheral surface thereof.

27. The image-forming apparatus comprising a conductive member according to claim 1.

28. A method of manufacturing a conductive member, having a conductiv layer, for use in an image-forming apparatus, comprising

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the steps of:

kneading or blending a salt capable of dissociating into cations and anions uniformly with a polymer composing an uncontinuous phase to which said salt capable of dissociating into cations and

5 anions is unevenly distributed to form a conpound or a mixture of said salt and said polymer;

adding a polymer composing a continuous phase and a polymer composing other uncontinuous phases to said conpound or said mixture; and kneading a mixture of said all components to form a conductive

10 polymer composition; and

molding or forming said conductive polymer composition by heating said conductive polymer composition into whole or a part of said conductive member for use in an image—forming apparatus.

29. A method of manufacturing a belt, for use in an image-forming

15 apparatus, according to claim 21, comprising the steps of:

fusing and kneading, by an extruder, a conductive master batch containing a copolymer having a polyether block and 1 to 20 wt% of said an anion-containing salt shown by a chemical formula 1, a flame-retardant additive, and a thermoplastic composition

20 containing not less than 50 wt% of a polyester thermoplastic elastomer to form a mixture; and

extruding said mixture from an annular die and molding said mixture into a shape of a seamless belt by using a sizing die.
Chemical Formula 1

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$$\begin{array}{c} X_1 \\ \diagdown \\ \diagup \\ X_2 \end{array} N^-$$
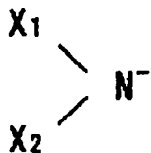
Where X_1 and X_2 denote functional group which contains C, F-, and $-SO_2-$ and in which the number of carbon atoms is one to eight.

30. The method of manufacturing a belt according to claim

5   29, wherein said flame-retardant additive and thermoplastic composition containing said polyester thermoplastic elastomer are kneaded and supplied to said extruder as a flame-retardant master batch; and said mixture of said conductive master batch and said flame-retardant master batch and other components are extruded

10 vertically from said annular die.